
Science Flight Report

Operation IceBridge Arctic 2012



Flight: F40
Mission: Humboldt 01

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	41
Flight Request	12P006
Date	Friday, May 11, 2012 (Z)
Purpose of Flight	Operation IceBridge Mission Humboldt 01
Take off time	11:02 Zulu from Thule Air Base (BGTL)
Landing time	17:36 Zulu at Thule Air Base (BGTL)
Flight Hours	6.8 hours
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None.
Accomplishments	<ul style="list-style-type: none">• Low-altitude survey (1,500) of glaciers and ice sheet profiles.• ATM, snow, Ku-band, accumulation radar, MCoRDS gravimeter, magnetometer, DMS and KT-19 skin temperature sensor were operated on the survey lines.• Pitch maneuvers for snow and Ku-band radar calibration.• Ramp pass at Thule Air Base for ATM calibration at 1,000 ft AGL.
Geographic Keywords	Humboldt Gletscher or Humboldt Glacier
Satellite Tracks	0071, 0324, 0086, 0339, 0101, 0354, 0315.
Repeat Mission	None.

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	64 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.6 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	610 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	610 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	170 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	78 GB	None
KT-19 Skin Temp.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8.5 MB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.5 GB	None
Magnetometer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	460 MB	None

Mission Report (Michael Studinger, Mission Scientist)

The weather was severe clear over most of northern Greenland and normally we would have had many mission plans to choose from. The problem is that on Friday's we can only go for a 7 hour mission because of ground support in Thule and this makes flying targets on the east coast very inefficient. We decided to fly Humboldt 01, because of its priority and because the mission plan was easier to shorten than most other plans. The Humboldt Glacier mission 01 is a new design. We repeated two historical ATM lines along flowlines down the Humboldt Glacier, and several descending ICESat tracks which parallel the terminus. We also flew the NSF GrIT traverse route between Thule and Camp Century, as well as an associated and collocated field site known as "2 Barrels".

Near Petermann Gletscher we flew over one of the many plane wrecks that Greenland has, a reminder that safety comes before anything we do. The plane wreck near Petermann Glacier is a B-29 named Kee Bird, that crash landed there in 1947 (see photos from the NASA/Digital Mapping System camera taking during last year's Petermann mission and on today's flight). The aircraft was repaired in 1995 and ready to be flown out. During taxi, the aircraft caught fire and burned down. PBS covered the repair attempt in a NOVA special in 1996.

Individual instrument reports from experimenters on board the aircraft:

ATM: Both ATM systems worked well and collected good data along the entire line in often cloud free conditions. ATM collected a total of 6.0 hours of science data with 100% coverage.

MCoRDS: The MCoRDS system worked well.

Snow and Ku-band radar: The snow and Ku-band radars worked well.

Accumulation radar: Worked well today.

Gravimeter: Worked well.

Magnetometer: Worked well and used the SGL data logger today without problems.

DMS: DMS worked well.

KT-19 skin temperature sensor: System worked well.

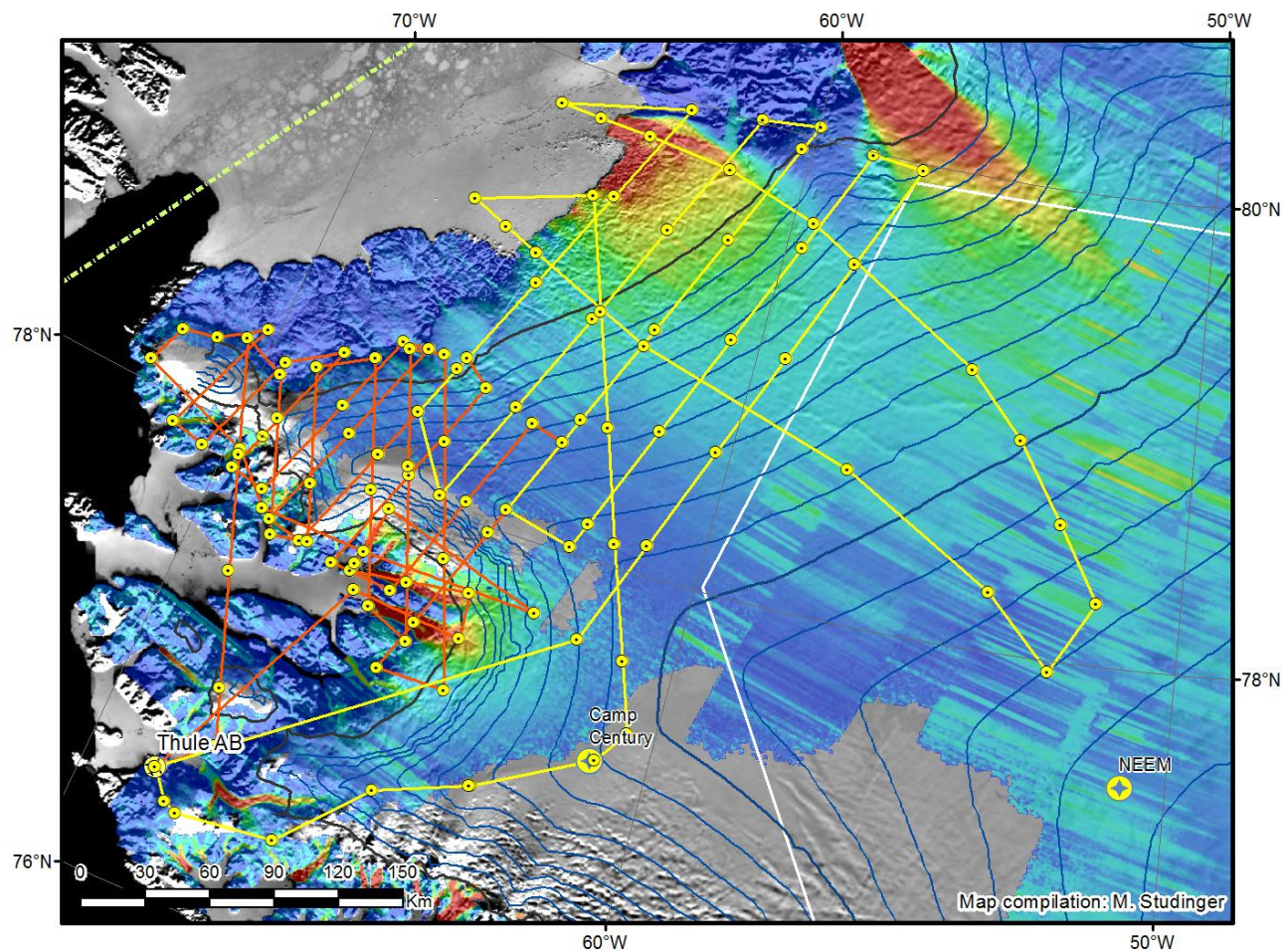


Figure 1: Today's mission plan in yellow. Red marks yesterday's flight over Cape Alexander.



Figure 2: DMS image of the B-29 wreck Kee Bird. Photo: Dennis Gearhardt, NASA/DMS.